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REGION 11 (HAWAII) 700 MHz REGIONAL PLANNING COMMITTEE

July 27, 2004

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

Dear Ms. Dortch:

Re: WT Docket 00-32

In order to meet the Commission requirement to finalize and submit a 4.9 GHz band plan, the Region 11 (Hawaii) 700 MHz Regional Planning Committee submits the attached plan.

Region 11 supports the National Public Safety Telecommunications Council (NPSTC) Petition for Reconsideration filed with the Commission on July 30, 2003. The timeframe of one year to develop a regional plan is not long enough given the amount of work and coordination required to produce a plan.

In addition, the issues raised in the NPSTC petition on the spectrum mask may have contributed to the lack of equipment ready for use in the 4.9 GHz band. Lack of information regarding what equipment will be available and information regarding the nature of the spectrum occupancy and interference characteristics of this unavailable equipment has made our task difficult.

If you have questions regarding the Region 11 4.9 GHz plan, please feel free to contact me at the phone number listed below.

Thank you for your consideration.

Sincerely,

Robert J. Hlivak, Chair
Region 11 (Hawaii) – 700 MHz Regional Planning Committee
1177 Alakea Street, Room 201
Honolulu, Hawaii 96813
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Attachment

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Region 11 (Hawaii) 700 MHz Regional Planning Committee
Coordination Plan For The 4940-4990 MHz Public Safety Band

Revision 1.1 July 27, 2004

Contents

Appendices

References

The following are incorporated by reference:

FCC 03-99 Memorandum Opinion and Order and Third Report and Order In The Matter of the 4.9 GHz Band Transferred From Federal Government Use, adopted April 23, 2003

The National Regional Plan Guidelines (an outline for regional plans utilizing public safety 4940-4990 MHz) provided by the National Public Safety Telecommunications Council dated May 21, 2004

SAFECOM Statement of Requirements for Public Safety Wireless Communications and Interoperability Version 1.0 dated March 10, 2004

Regional Plan

This is the Regional Plan for utilizing Public Safety 4940-4990 MHz spectrum within the State of Hawaii. This plan was adopted by the Region 11 (Hawaii) 700 MHz Regional Planning Committee ("Region 11 RPC") in accordance with rules and guidelines adopted by the Federal Communications Commission for planning and utilization of the 4940-4990 MHz band (also known as the 4.9 GHz band). Within the meaning of Federal Communications Commission Rule 90.1211, this document is hereby identified as the plan for coordinating the shared use of the 4.9 GHz band within Region 11 (Hawaii). This plan may be amended or changed as provided herein, or as required by the Federal Communications Commission.

Regional Planning Authority

The Federal Communications Commission adopted rules for the 50 megahertz of spectrum in the 4940-4990 MHz band (also known as the 4.9 GHz band). The Federal Communications Commission in FCC 03-99 Memorandum Opinion and Order and Third Report and Order In The Matter of the 4.9 GHz Band Transferred From Federal Government Use, adopted April 23, 2003, is incorporated herein by reference.

FCC 03-99 authorized the Public Safety 700 MHz Regional Planning Committees to manage the implementation of 4.9 GHz within their respective regions. Under this authority, the Region 11 RPC establishes this Regional Coordination Plan For Public Safety 4940-4990 MHz.

Planning Region

This plan covers Region 11 (Hawaii) as identified by the Federal Communications Commission for the purposes of Public Safety 700 MHz Regional Planning. This planning region is further defined as consisting of the State of Hawaii. The Constitution of the State of Hawaii provides that, "The State of Hawaii shall consist of all the islands, together with their appurtenant reefs and territorial and archipelagic waters, included in the Territory of Hawaii on the date of enactment of the Admission Act, except the atoll known as Palmyra Island, together with its appurtenant reefs and territorial waters; but this State shall not be deemed to include the Midway Islands, Johnston Island, Sand Island (offshore from Johnston Island) or Kingman Reef, together with their appurtenant reefs and territorial waters."

The State of Hawaii consists of five counties: Hawaii, Honolulu, Kalawao, Kauai and Maui. Honolulu is designated as the "City and County of Honolulu." There are no separately incorporated cities or towns. The four principal counties are Hawaii, Honolulu, Kauai and Maui. Each is governed by a mayor and council. The State of Hawaii and the four principal counties are represented on the Public Safety 700 MHz Regional Planning Committee for Region 11 (Hawaii) by three members each.

The County of Hawaii consists of the Island of Hawaii and all other islands and waters within three nautical miles of its shores. The County of Kauai consists of the islands of Kauai and Niihau and all other islands and waters within three nautical miles of their shores. The County of Maui consists of the Islands of Maui, Molokai, Lanai, Kahoolawe and all other islands and waters within three nautical miles of their shores. The City and County of Honolulu consists of the Island of Oahu and all other islands and adjacent waters not included in any other county. These counties are political subdivisions of the State of Hawaii and are corporate bodies with all powers authorized by the Constitution and laws of the State of Hawaii.

The 2002 resident population of the State of Hawaii was 1,244,898, and the principal population center is the City and County of Honolulu. The City and County of Honolulu consists primarily of the Island of Oahu, but legally includes the northwestern Hawaiian Islands extending to the Kure Atoll, 1,367 miles from Honolulu. The metropolitan Honolulu area is confined to the Island of Oahu and its immediate surroundings. The island of Oahu has a land area of 597.6 square miles. The resident population is 876,156 (2000 census) with a *de facto* population of approximately 1,000,000 (including transient visitors/tourists and military personnel and their dependents). The State of Hawaii has an overall population of 1,211,537, with a further substantial military presence and over 4,000,000 visitors to the state each year. Over 85% of the state's de facto population (residents, military and visitors combined) resides in the City and County of Honolulu.

The County of Kalawao is a special government entity, as described in Section 326-34 of the Hawaii Revised Statutes as follows:

> "**§326-34 County of Kalawao; governance.** (a) The County of Kalawao shall consist of that portion of the island of Molokai known as Kalaupapa, Kalawao, and Waikolu, and commonly known or designated as the Kalaupapa Settlement, and shall not be or form a portion of the county of Maui, but is constituted a county by itself. As a county it shall have only the powers especially conferred and given by sections 326-34 to 326-38 and, except as provided in those sections, none of the provisions of the Hawaii Revised Statutes regarding counties shall be deemed to refer to or shall be applicable to the county of Kalawao. (b) The County of Kalawao shall be under the jurisdiction and control of the department of health and be governed by the laws, and rules relating to the department and the care and treatment of persons affected with Hansen's disease, except as otherwise provided by law."

The County of Kalawao is the smallest county in the United States, with a total area of 136 square kilometers and a population of 147 recorded in the United States Census of 2000. Police services are provided to the County of Kalawao by a Sheriff who is appointed by the Department of Health and is the only County official of Kalawao. The interests of the population of the County of Kalawao are addressed and preserved by the members of the Regional Planning Committee in the absence of direct representation.

Points of Contact

Questions, comments, or other informal inquiries regarding this coordination plan or other matters regarding the use of the 4940-4990 MHz band within the State of Hawaii should be referred to the Chair of the Region 11 RPC. However, individuals should feel free to contact any Region 11 RPC Officer, Voting Member, or member of the 4.9 MHz Band Working Group.

Region 11 RPC Officers

The officers of the Region 11 RPC are:

Chair

Robert J. Hlivak
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Region 11 RPC Voting Members

The Voting Members of the Region 11 RPC are:

Representing the County of Kauai

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Region 11 RPC 4.9 MHz Band Working Group

The chair of the 4.9 MHz Planning Subcommittee for the Region 11 RPC is:

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Communicating with the Region 11 RPC

All formal communication with the Region 11 RPC should be in writing and directed to the Chair or Vice Chair at their business addresses as indicated in this plan for local channel usage, comments for the record or any other official business.

Regional Planning Committee Guidelines and Procedures For Operation

The Bylaws of the Region 11 RPC are incorporated in this plan by reference and attached as an appendix.

Notification Process and Participatory Planning

The Region 11 RPC endeavored to provide all eligible entities within the region with an opportunity to participate in the planning process and to have their positions heard and considered fairly.

The membership of the Region 11 RPC represents the government of the State of Hawaii and the four principal counties (Hawaii, Honolulu, Kauai, and Maui), and is thereby inclusive of the public safety agencies and interests of eligible entities within the region.

The Region 11 RPC conducted regional planning meetings that addressed 4.9 GHz implementation issues and planning within the region. These meetings were announced by Public Notices posted on the Federal Communications Commission web site at:

http://wireless.fcc.gov/publicsafety/700MHz/regions/region11.html

Meetings and Notices

- Federal Communications Commission Public Notice dated December 24, 2003; "Wireless Telecommunications Bureau Action Region 11 (Hawaii) 700 MHz Regional Planning Committee Announces Public Safety Planning Meeting" announced that the committee's rules in coordinating the 4.9 GHz Band was on the agenda for the January 29, 2004 meeting.

- January 29, 2004, the 4.9 GHz Band and the committee's rules in coordinating the 4.9 GHz Band were discussed during the Region 11 RPC Meeting.

- June 22, 2004, the 4.9 GHz Band was discussed during the Region 11 RPC Meeting and a subcommittee assigned to formulate a draft plan for discussion at the July 21, 2004 meeting.

- July 21, 2004, the draft 4.9 GHz Plan was discussed during the Region 11 RPC Meeting and adopted by the committee for filing with the Federal Communications Commission.

Public Safety Entities and Eligible Users

This section describes the types of public safety, law enforcement, government, public service, or other entities that are included in Region 11 and the public safety entities and eligible users that have jurisdiction within or over any or all portions of the region, including local, county and state agencies, federal agencies, critical infrastructure users.

State of Hawaii

Law enforcement activities in the State of Hawaii government are carried out by officers employed by the Department of Public Safety, State Attorney General, Department of Land & Natural Resources, and Department of Transportation. State employees with duties directly

involved with or that support public safety and emergency response include professionals employed by the Department of Health, (State) Department of Defense Hawaii National Guard and Civil Defense Division, Department of Land and Natural Resources, and the Department of Transportation Harbors, Highways, and Airports Divisions. The Department of Land & Natural Resources also responds to fight remote area wild fires. The Department of Public Safety also manages the State's incarceration facilities.

County Police Departments

The county police departments are the primary law enforcement agencies in the State of Hawaii. The principal law enforcement agencies are the Honolulu Police Department, Maui Police Department, Hawaii County Police Department and Kauai Police Department. These departments provide 24-hour police patrol presence and emergency response services 24-hour dispatch centers, and are responsible for the prevention and investigation of crimes, the arrest of law violators, the protection of the community and the preservation of life and property, patrol of all public streets and highways, response to all significant incidents that threaten life and property in their respective jurisdictions. The county police departments have a significant role in intelligence gathering, threat detection, counter-terrorism and emergency incident scene response. There is no equivalent to state police or highway patrol as in many other states. These roles are served by the county police, who number approximately 4,000 law enforcement personnel statewide. The county police departments participate in incident management and incident command.

County Fire Departments

The county fire departments are the primary agencies for response to fires, hazardous materials emergencies and other significant threats to life and property including toxic chemicals, radioactive substances and petroleum fires. The principal fire departments are Honolulu, Maui, Hawaii County and Kauai. The fire departments deploy engines, ladders, rescue, hazardous materials units, fireboats, tankers and helicopters. The fire departments have 24-hour dispatch centers are primary first-responders. The county police departments participate in incident management and incident command.

Emergency Medical Services

The county emergency medical services (EMS) departments provide emergency medical care and ambulance services for the counties. EMS provides emergency medical response in coordination with other agencies, including local, state, federal, and private organizations in response to mass casualty incidents and other emergency medical services. EMS communications systems statewide are licensed to and managed by the State of Hawaii Department of Health.

Civil Defense

The Hawaii State Civil Defense (SCD) is the overall coordinator for preparedness, mitigation and recovery from acts of terrorism for the State of Hawaii. SCD responsibilities span the entire state, including Oahu.

The county civil defense agencies have a significant role in responding to acts of terrorism and the coordination of county-level assets in response to a wide range of large-scale emergencies. The county civil defense agencies coordinate with the SCD and other federal, state and county agencies to provide rapid assistance during disasters with a full range of resources. The county civil defense agencies maintain emergency operations centers that coordinate emergency operations and assets in response to significant emergencies and deploy civil defense personnel at scenes to assist with emergency response operations.

Public Service Agencies

There are many public service agencies in the state and county governments that would participate or contribute to the response to serious incidents in various roles. Examples include providing personnel and equipment for crowd control, traffic control, heavy equipment for debris removal, water tankers and bulldozers for fighting brush fires, transportation services, infrastructure and a wide variety of other missions that would be significant in various situations.

Operations With Entities That Are Not Components of State or County Government

The public safety, first responder, emergency services, critical infrastructure and other affected agencies and entities in the State of Hawaii are engaged in an ongoing process to foster operable and interoperable wireless communications and data interoperability. It is assumed that as a result of this process that State and County entities that utilize the 4.9 GHz band will share the use of the 4.9 GHz communications facilities with their cooperating partners. In all cases these systems operating in the 4.9 GHz band will be under the management of the owning State or County government agency.

The City and County of Honolulu has developed an Interoperability Work Plan, which has been accepted by the Department of Homeland Security Office of Domestic Preparedness (DHS/ODP). The Interoperability Work Plan is the product of the Honolulu Urban Area Working Group (HUAWG). The HUAWG is applying Urban Area Security Initiative (UASI) funds to achieving voice and data communications interoperability. The objective of the Interoperability Work Plan is to provide infrastructure for wireless data and voice communications interoperability for first responders and public safety officials in the Honolulu Urban Area and enhance security and overall preparedness to prevent, respond to and recover from acts of terrorism.

A statewide initiative, currently called the Hawaii Wireless Interoperability Network (HWIN), is in the process of organizing. In July 2004, the Governor of the State of Hawaii formally invited

the County Mayors to participate in this process. At present the plan is for the HWIN Executive Steering Committee to include representatives of the State and Counties as well as the federal Departments of Defense, Homeland Security, and Justice. The HWIN process will also include input from Non-governmental Organizations (NGOs) and critical infrastructure industries. It is the intent of the HWIN Executive Steering Committee to be inclusive with respect to participation in the planning process for interoperable communications.

Ongoing 4.9 GHz Planning Process

This spectrum has been reallocated from federal government use to public safety use for wide bandwidth data systems, and fixed links on a secondary basis.

In adopting rules for the 4.9 GHz band, the Federal Communications Commission adopted the Regional Planning process to coordinate the spectrum at a Regional level. The Region 11 RPC formed the Hawaii 4.9 GHz Planning Subcommittee to engage in planning and propose a 4.9 GHz Coordination Plan for Hawaii.

A spectrum utilization plan and framework for the future management to meet state and county needs, encourage innovative use of the spectrum, and accommodate new and as yet unanticipated developments in technology equipment.

In the absence of products that are type accepted for use in the band, this plan is intended to provide the Federal Communications Commission with preliminary findings identified in the Regional Planning Committee meetings. It is anticipated that the process of planning will be ongoing and that updated plans will be filed with the Federal Communications Commission to better reflect the 4.9 GHz cooperative environments within Region 11 as part of this ongoing process.

It should also be noted the Federal Communications Commission required all users of the spectrum to be bound by Rule Section 90.173(b), which will require 4.9 GHz applicants and licensees to cooperate in the selection and use of frequencies so as to reduce interference and maximize effective use of authorized facilities. The success of 4.9 GHz public safety implementation relies largely on the adherence to this one point; that the "public safety commons" environment, where no one user or licensee has any more expectation of an interference free environment than any other, is accepted by the public safety community. It is anticipated that community based public safety broadband development, utilizing the 4940-4990 MHz band, will be fostered and embellished by agencies working closely together by sharing hardware and spectrum in their respective communities.

General Guidelines For Public Safety Broadband Wireless Communications

Region 11 is engaged in an ongoing process of planning and interagency cooperation to provide for the use of the 4940-4990 MHz band in the future of public safety communications and operations within the region.

The National Regional Plan Guidelines (an outline for regional plans utilizing public safety 4940-4990 MHz) provided by the National Public Safety Telecommunications Council dated May 21, 2004 is a primary reference and planning guide for this plan and the ongoing planning process for Region 11. This document is incorporated herein by reference.

The SAFECOM Statement of Requirements for Public Safety Wireless Communications and Interoperability Version 1.0 dated March 10, 2004 is a primary reference and planning guide for this plan and the ongoing planning process for Region 11. This document is incorporated herein by reference.

Anticipated applications in the 4940-4990 MHz band include:

Personal Area Networks (PAN)

- Enable Blue Tooth type applications in a vehicle, thereby removing wiring that can restrict end users.
- Change mobile unit design in public safety, as 4.9 GHz Spectrum will enable broadband environments for the user.

Vehicular Local Area Networks (VLAN)

- An area around the vehicle where broadband access is brought out of the vehicle, Blue-tooth, short-range type applications.
- Within 50 ft of a vehicle, a LAN may be deployed to manage/monitor life critical functions, such as pulse, heartbeat, blood pressure, oxygen level in first responders and connect the end user to the vehicle.

Hot Spots

- Nodes placed in strategic areas in a community, shared by multiple agencies/disciplines, which will enable seamless high capacity download of video and other large files.
- Single site areas connected together to develop seamless wider area broadband environments where necessary.
- COTS based (Commercial Off The Shelf) hardware with technology that is tolerant to adjacent/co-channel interference as throughput reduction occurs as a result of adjacent channel interference, rather than the entire operation becoming ineffective.

Fixed Point-Point

- Permanent fixed point-point with 4.9 GHz licensed site by site.
- Band not intended for long-term, dedicated point-point use. Fixed point-point temporary deployments of 4.9 GHz would provide Command Post and emergency response usage.

- Permanent, fixed operations would be licensed separately as secondary use.

Conceptual planning considerations:

Public Safety Communications Devices—Public safety personnel in these scenarios communicate using a device that is portable (handheld or wearable), unless specifically noted for Command Post or other in-vehicle use. Throughout this document, these devices will be referred to as Public Safety Communications Devices (PSCD).

Public Safety Communications User Group—Public safety personnel and resources that are recognized by the system to share communications and information. This implies that traffic related to this user group only traverses the portion of the network necessary to reach all members of particular user group. Each user group can be a permanent unit or a temporary unit created by an authorized user for a particular task.

System of Systems—The communications devices are associated with systems or networks that range in size from small to large. Whether large or small, the systems work with each other to pass information and communications back and forth seamlessly. In other words, all systems together become a system of systems.

Personal Area Network (PAN)—On the small scale, the communications device interacts with other devices that belong with the public safety individual. A first responder is equipped with wireless devices used to monitor the first responder's physical location, pulse rate, breathing rate, oxygen tank status, as well as devices for hazardous gas detection and voice communications. The devices are all linked wirelessly on a personal area network (PAN) controlled by the first responder's communications device.

Incident Area Network (IAN)—An incident area network (IAN) is a network created for a specific incident. This network is temporary in nature.

Jurisdiction Area Network (JAN)—The JAN is the main communications network for first responders. It is responsible for all non-IAN voice and data traffic. It handles any IAN traffic that needs access to the general network, as well as providing the connectivity to the EAN.

Extended Area Network (EAN)—The city systems are in turn linked with county, regional, state, and national systems or extended area networks (EAN).

Permanent and Temporary Networks—JANs and EANs are networks that exist at all times whereas the IANs are created on temporary basis to serve a particular purpose, such as an incident and then are dissolved. The nature of the IAN is such that it may not reach all areas of an incident. In such cases, the user would either connect to the JAN, or create a temporary network to extend the IAN to the area not covered.

Public Safety Communications User Registration and Authorization—The PAN is created every time a public safety individual begins a work shift and turns on his communications device. The individual needs to provide a positive identification, such as through a biometric scan, to his communications device, which then registers the individual on the network. From that moment on, all voice or data communications from that communications device are associated with only that individual. All the pieces of equipment that can monitor the environment, monitor the health of the individual, locate his exact position, etc. register with the individual's identification on the systems so that every time a monitor provides a measurement, the measured value is associated with that public safety individual. Each individual also has privileges, permissions, and authorities to communicate with others and to access databases and systems to complete the individual's work assignments. The systems will allow communications and system access based upon the user's profile and authorizations.

Temporary Network Creation and Growth—An emergency event or incident can happen anywhere, and those responding to the incident must have communications on-scene as well as away from the scene for command, control, and information to complete their missions. As public safety individuals and resources, such as ambulances and fire engines, come into an incident, the incident communications system or IAN will automatically recognize the new entry, register and authorize the resource, and allow an authorized user to assign the resource to user groups for communications and information exchange. Additionally, in the absence of a network, such as an IAN or JAN, the communications system is designed to allow continued operation in the absence of this infrastructure.

Procedures For Temporary Fixed and Mobile Operations

The procedures for temporary fixed and mobile operations (including but not limited to mechanisms for incident management protocols, interference avoidance and abatement, and interoperability) are in the process of being developed. These developments are taking place through interagency cooperation and within the context of structured efforts such as the HWIN. These will integrate with the incident command system.

Incident Command System

Police will manage incidents within the State of Hawaii, fire and other agencies responsible for incident command will be managed under the National Incident Management System (NIMS).

NIMS establishes standardized incident management processes, protocols, and procedures that all responders, Federal, state, tribal, and local, will use to coordinate and conduct response actions. With responders using the same standardized procedures, they will all share a common focus, and will be able to place full emphasis on incident management when a homeland security incident occurs whether it is an act of terrorism or natural disaster. In addition, national

preparedness and readiness in responding to and recovering from an incident is enhanced since all of the Nation's emergency teams and authorities are using a common language and set of procedures.

Incident Command System (ICS). NIMS establishes ICS as a standard incident management organization with five functional areas, Command, Operations, Planning, Logistics, and Finance/Administration for management of all major incidents. To ensure further coordination, and during incidents involving multiple jurisdictions or agencies, the principle of unified command has been universally incorporated into NIMS. This unified command not only coordinates the efforts of many jurisdictions, but provides for and assures joint decisions on objectives, strategies, plans, priorities, and public communications.

Communications and Information Management. Standardized communications during an incident are essential and NIMS prescribes interoperable communications systems for both incident and information management. Responders and managers across all agencies and jurisdictions must have a common operating picture for a more efficient and effective incident response.

4940-4990 MHz Band Allocation Plan for Region 11 (Hawaii)

The frequency allocation or band plan for 4940-4990 MHz with Region 11 follows the FCC channelization scheme and assigns "Primary" and "Alternate" uses for each sub-band. While using agencies are encouraged to utilize the band in accordance with the Primary use category, the Alternate uses are permissible, especially when needed for aggregation of larger frequency blocks with an associated Primary use.

"Point-to-Point" operation is assumed to be full duplex and such operation is assigned in pairs designated as A, B, C, D, E, and X. Channel pairs A, B, C, D, and E may be aggregated in any contiguous combination to form pairs that encompass an integral number of FCC channels up to and encluding use as a 5 MHz wide channel in each direction. Long-term, dedicated use of Point-to-Point links is permitted but is strongly discouraged within Region 11.

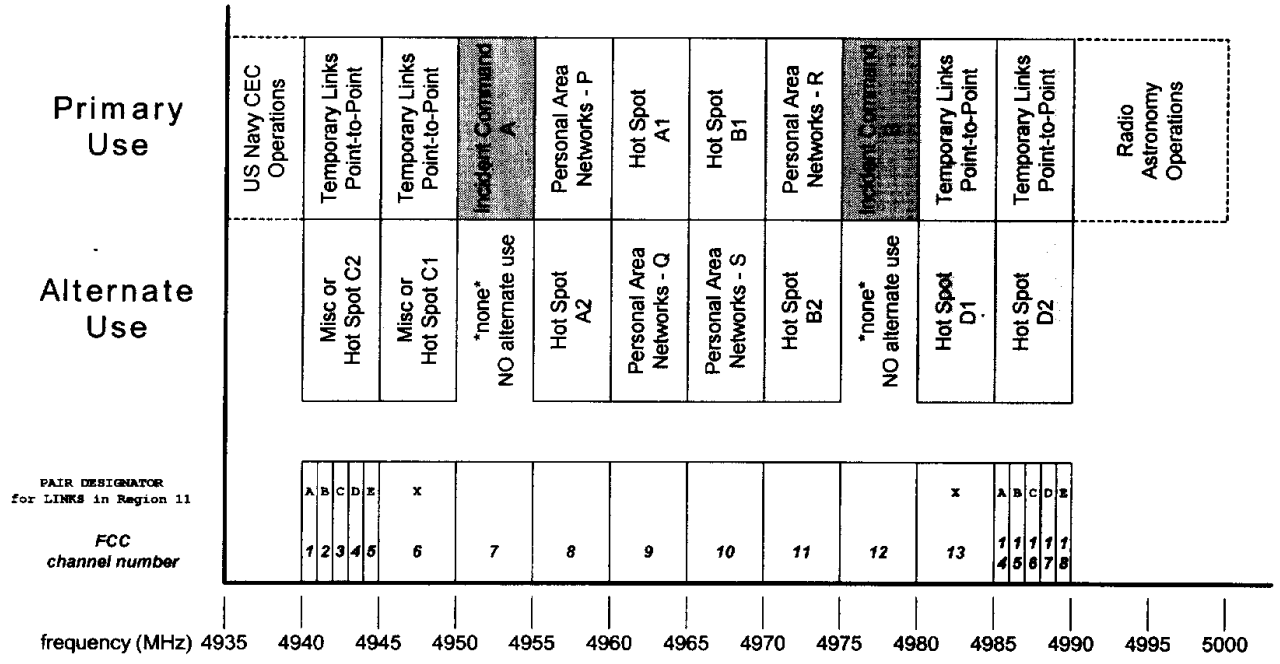
"Incident Command" operation can be any type of use other than point-to-point linking and the channels assigned for use by Incident Command operation should not be used for any other purpose than the direct support of operations for incident command.

The "Personal Area Networks" class of operation includes Personal Area Networks and Vehicular Local Area Networks, both of which are assumed to be transient and mobile and/or portable in nature.

"Hot Spot" operation is that associated with fixed nodes that are located in strategic areas in the community

Region 11 - Hawaii - 4.9 GHz Bandplan

Issue: 21 July 2004



4.9 GHz Spectrum Utilization Agreements With Adjacent Regions

Region 11 (Hawaii) is uniquely isolated by its geography and in consequence has not entered into any 4.9 GHz Spectrum Utilization Agreements With Adjacent Regions.

Protection of Incumbent Radio Telescope Stations

Incumbent Radio Telescope Stations within the Region or near the Region's border shall be protected from interference. One Incumbent Radio Telescope Station has been identified within this region, as indicated in the Table - Radio Astronomy Quite Zones (Mauna Kea has been highlighted) and illustrated in Figure - Radio Astronomy Quite Zones. A radio astronomy quiet zone shall be observed within a fifty mile radius of the Very Long Baseline Array Station located at Mauna Kea on the Island of Hawaii, Latitude 19° 48' North, Longitude 155° 27' West. No equipment or use of 4940-4990 MHz frequencies is permitted within this radio astronomy quiet zone under this plan until such time as the prospective user agency submits a written plan to the National Radio Astronomy Observatory 's VLBA Operations Center in Socorro, NM. A request

for plan approval during a regular scheduled public meeting of the Region 11 RPC can be requested no earlier than 45 days after the plan has been received by the VLBA. For any such plan to be approved it must demonstrate non-interference with the Very Long Baseline Array Station at Mauna Kea. Agency use of 4940-4990 MHz frequencies may be restricted to public safety emergencies.

Table - Radio Astronomy Quite Zones

Location Name	Area	Latitude	Longitude
Allen Telescope Array Hat Creek, California	Rectangle within	40° 00' N 42° 00' N	120° 15' W 122° 15' W
NASA Goldstone Deep Space Communications Complex Goldstone, California	50 mile radius	35° 18' N	116° 54' W
National Astronomy and Ionosphere Center Arecibo, Puerto Rico	Rectangle within	17° 30' N 19° 00' N	65° 10' W 68° 00' W
National Radio Astronomy Observatory, Socorro, New Mexico	Rectangle within	32° 30' N 35° 30' N	106° 00' W 109° 00' W
National Radio Astronomy Observatory Green Bank, West Virginia	Rectangle within	37° 30' N 39° 15' N	78° 30' W 80° 30' W
National Radio Astronomy Observatory Very Long Baseline Array Station Brewster, WA	50 mile radius	48° 08' N	119° 41' W
Very Long Baseline Array Station - Fort Davis, Texas	50 mile radius	30° 38' N	103° 57' W
Very Long Baseline Array Station - Hancock, New Hampshire	50 mile radius	42° 56' N	71° 59' W
Very Long Baseline Array Station - Kitt Peak, Arizona	50 mile radius	31° 57' N	111° 37' W
Very Long Baseline Array Station - Los Alamos, New Mexico	50 mile radius	35° 47' N	106° 15' W
[redacted]	[redacted]	[redacted]	[redacted]
Very Long Baseline Array Station - North Liberty, Indiana	50 mile radius	41° 46' N	91° 34' W
Very Long Baseline Array Station - Owens Valley, California	50 mile radius	37° 14' N	118° 17' W
Very Long Baseline Array Station - Pie Town, New Mexico	50 mile radius	34° 18' N	108° 07' W
Very Long Baseline Array Station - Saint Croix, Virgin Islands	50 mile radius	17° 46' N	64° 35' W
Owens Valley Radio Observatory 1 Big Pine, California	Rectangle within	36° 00' N 37° 00' N	117° 40' W 118° 30' W
Owens Valley Radio Observatory 2 Big Pine, California	Rectangle within	37° 00' N 38° 00' N	118° 00' W 118° 50' W

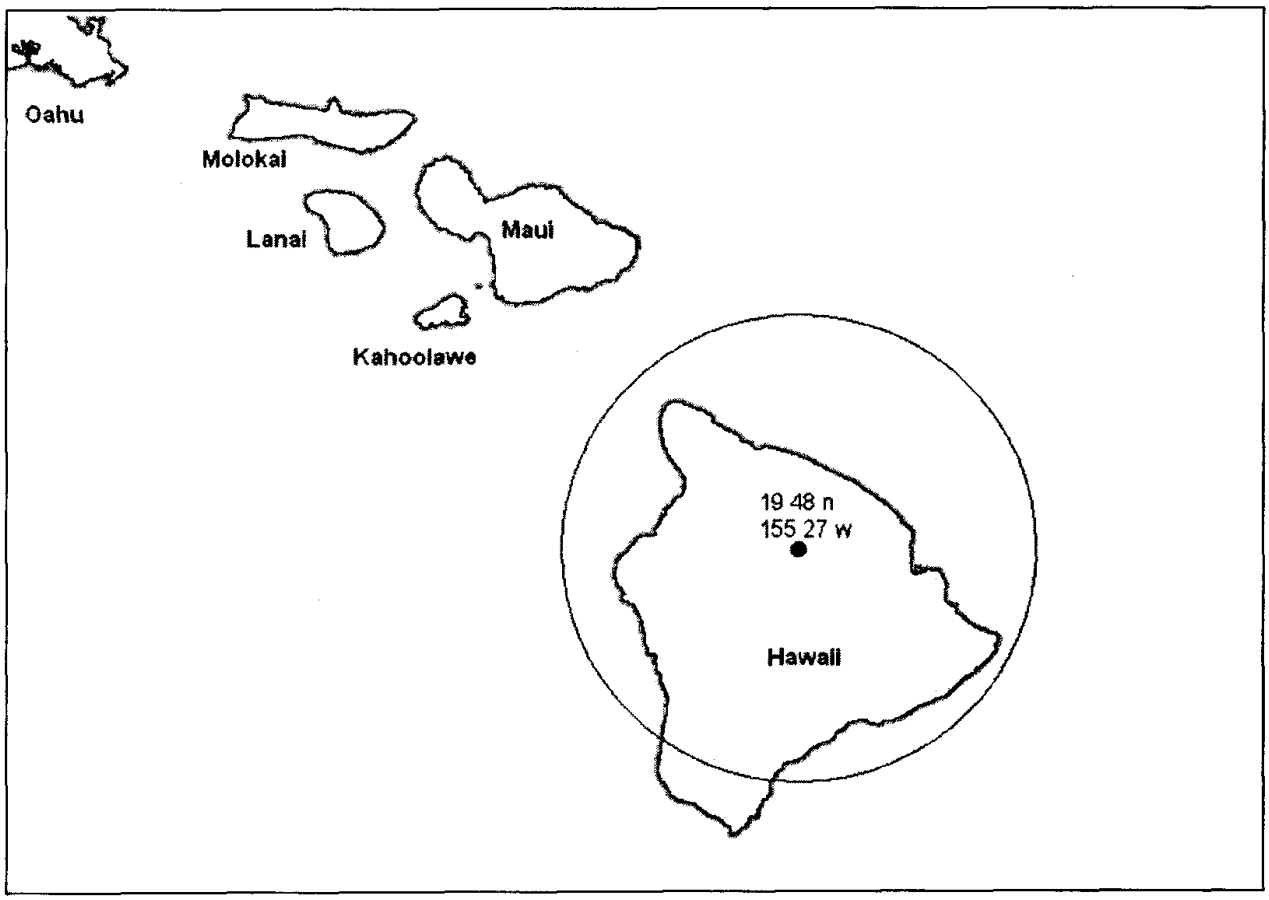


Figure - Radio Astronomy Quite Zones Within The State Of Hawaii

United States Navy Cooperative Engagement Capability (CEC) System

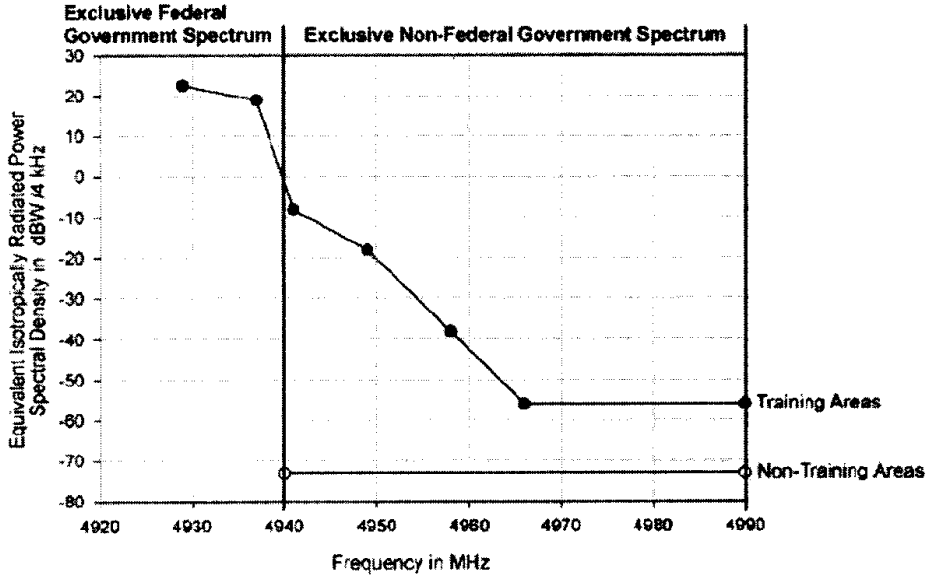
The United States military uses adjacent frequencies. The known issue with the military is with the Navy's Cooperative Engagement Capability (CEC) system. CEC is a project started in the mid-1980's to bring together the varied systems in the Navy to allow for a single view of a battlefield. To accomplish this mission the following areas make use of this technology on an on-going basis.

Table – CEC Training Areas

CEC Training	General Area
Area 1	Atlantic Coast
Area 2	Gulf Coast
Area 3	Pacific Coast
Area 4	Pacific Coast
Area 5	White Sands Missile Range, New Mexico
Area 6	China Lake Naval Weapons Center, CA
[redacted]	[redacted]
Area 8	Atlantic Ocean and Caribbean
Area 9	Atlantic Coast

Area 7 is expected to influence the entire State of Hawaii. Interference could occur anywhere within the State of Hawaii and the surrounding waters. The following graphic illustrates the extent of the possible interference by the CEC operations.

CEC Emissions Across The 4940-4990 MHz Band



CAPRAD Database

Region 11 intends to use the CAPRAD (Computer Assisted Pre-Coordination Resource and Database System) database to and document regional coordination of 4940-4990 MHz band use to promote efficient operation. The Public Safety 700 MHz Regional Planning Committee for Region 11 (Hawaii) shall authorize database management for this purpose.

The CAPRAD Database is located at the web site:

http://caprad.nlectc.du.edu/login/home